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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/592,015

07/23/2007

Akira Takaki

5404/171

7011

757 7590 01/29/2009  
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EXAMINER

OJURONGBE, OLATUNDE S

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/592,015	<b>Applicant(s)</b> TAKAKI ET AL.	
	<b>Examiner</b> OLATUNDE S. OJURONGBE	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07/23/2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20061103; 20060907</u> .                                      | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-6, are drawn to a process for producing a polyorganosiloxane-containing resin and a polyorganosiloxane-containing resin produced by the process.

Group II, claim 7, is drawn to a resin composition comprising a thermoplastic resin and/or a thermosetting resin and the polyorganosiloxane-containing resin.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: while the special technical feature of the invention is the polyorganosiloxane-containing resin, there is lack of unity a priori, since the silicone element is not the applicant's contribution over prior art (see Sasaki et al (US 4,690,986)).

2. During a telephone conversation with Richard Lione on 01/14/2009 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claim 7 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result**

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**in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 1-6** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "A process for producing a polyorganosiloxane-containing resin, ....and filtering the resultant mixture to decrease a residue in the resin". It is unclear what limitation the applicant tries to set; "a residue", as used in the language is vague as it is unclear what the residue is.

Dependent claims 2-6 are rejected for the same reason.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. **Claims 1-4 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sasaki et al (US 4,690,986)**.

Regarding **claims 1, 3 and 6**, Sasaki et al teaches a process of producing polyorganosiloxane-based graft copolymer (col.1, lines 7-12), said process comprising adding graft copolymer latex to about 3 to 5 times the volume thereof of isopropyl alcohol/methanol to coagulate, thereby recover the graft copolymer (col.2, lines 23-30 and col.6, lines 46-50). Sasaki et al further teaches that the obtained graft copolymer latex is coagulated by the usual salt coagulation method and that the separated solid is

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among other steps, washed. (col.7, lines 9-10). Sasaki et al further exemplifies a process comprising heating a reaction mixture at 75°C and coagulating the resulting latex using aqueous  $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$  to obtain a graft copolymer. The result of the graft polymerization indicates a percentage grafting of 87.4%, a graft efficiency of 87.4% and the content of polyorganosiloxane in the graft copolymer is 50 wt%(col.11, line 53-col.12, line 12); the result of the graft polymerization teaches an amount of ungrafted (unreacted) siloxane reactant of more than 5% by weight.

The ungrafted (unreacted) siloxane, which for Example 5 is octamethylcyclotetrasiloxane (col.11, lines 54-54), of Sasaki et al, serves as the volatile siloxane of the instant claim.

The graft copolymer of Sasaki et al is a resin (see col.4, lines 47-55).

Though Sasaki et al does not teach the process of producing a polyorganosiloxane-containing resin of the instant claim, since Sasaki et al teaches the use of isopropyl alcohol/methanol to coagulate the graft copolymer of the invention, motivated by the desire to ensure a maximum coagulation of the graft copolymer of the exemplified process of Sasaki et al, one of ordinary skill in the art would have introduced isopropyl alcohol/methanol into the steps of the exemplified process of Sasaki et al, by routine experimentation with an expectation of success. Furthermore, since regarding the coagulation of the graft copolymer by the aqueous calcium chloride, there are only three options of the incorporation of the isopropyl alcohol/methanol into the exemplified process steps of Sasaki et al, that is, immediately before the coagulation of the graft copolymer by the aqueous calcium chloride, in combination with the aqueous calcium

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chloride or immediately after coagulation with the aqueous calcium chloride, one of ordinary skill in the art would formed the exemplified graft copolymer utilizing process steps that comprises each of the three options by routine experimentation with an expectation of success.

Furthermore, since Sasaki et al teaches the washing of the graft copolymer (col.7, lines 9-10), motivated by the desire to recover as much graft copolymer as possible, it would have been obvious to one of ordinary skill in the art to have utilized filtering with the washing step of Sasaki et al.

Upon the washing and filtering step of Sasaki et al, the residue is inherently decreased in the graft copolymer of Sasaki et al.

Methanol and/or isopropyl alcohol of Sasaki et al serves as the organic solvent of the instant claim; this also meets the limitations of claim 3.

Regarding **claim 2**, octamethylcyclotetrasiloxane, the exemplified siloxane of Sasaki et al is a volatile siloxane.

Regarding **claim 4**, Sasaki et al teaches adding the graft copolymer latex to the isopropyl alcohol/methanol once.

11. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Sasaki et al (US 4,690,986)** in view of **Kitaike et al (WO 2004/063238, US 2006/0110617** is used for ease of citation).



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Regarding **claim 5**, Sasaki et al teaches all the claim limitations as set forth above.

Sasaki et al does not teach the process for producing the polyorganosiloxane-containing resin, wherein the calcium content of the resin is 300 to 1,000 ppm.

Kitaike et al teaches an acrylic film material comprising at least a multilayer structure polymer (abstract). Kitaike et al further teaches that the multilayer structure polymer can be obtained by recovering it from a polymer latex by methods that include salting-out. Kitaike et al further teaches that calcium coagulation tends to give relatively good result, but in any case, it is necessary to reduce the amount of a residual metal to 800 ppm or less, preferably as low as possible, for achieving good water whitening resistance [0196-0197].

Motivated by the desire to improve the whitening resistance of the grafted copolymer of Sasaki et al, as taught by Kitaike et al, it would have been obvious to one of ordinary skill in the art to have maintained a calcium content of the grafted copolymer in an amount of 800 ppm or less as taught by Kitaike et al. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art *prima facie* case of obviousness exists.

### **Conclusion**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLATUNDE S. OJURONGBE whose telephone number is (571)270-3876. The examiner can normally be reached on Monday-Thursday, 7.15am-4.45pm, EST time, Alt Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuo-Liang Peng/  
Primary Examiner, Art Unit 1796

O.S.O.